

DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY		
North Dakota Science Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark Expectations
3, 4	6.1.3.	Explain the connection between cause and effect in a system.
All lessons	6.2.1.	Explain the components of a scientific investigation (e.g., hypothesis, observation, data collection, data interpretation, communication of results, replicable).
All lessons	6.2.2.	Select alternative methods of scientific investigations (e.g., library, internet, field work) to address different kinds of questions.
1, 3, 4	6.2.4.	Use appropriate tools and techniques to gather and analyze data.
1, 3, 4	6.2.5.	Use data from scientific investigations to determine relationships and patterns.
3, 4	6.8.1.	Identify various settings in which scientists may work alone or in a team (e.g., industries, laboratories, field work).
Grade 7		
1, 3, 4	7.2.1.	Communicate the results of scientific investigations using an appropriate format (e.g., journals, lab reports, diagrams, presentations, discussions).
3, 4	7.7.1	Explain how science affects personal health (e.g., injury prevention, immunization, organ transplant, medical scanning devices).
4	7.7.2.	Identify the factors (e.g., pollution, heredity, diet, virus, bacteria, parasite) that may result in disease.
All lessons	7.8.1.	Explain how science is influenced by human qualities (e.g., reasoning, insightfulness, creativity, life-long learning).
Grade 8		
All lessons	8.2.2.	Use evidence to generate descriptions, explanations, predictions, and models.
3, 4	8.2.3.	Use basic mathematics and statistics (e.g., operations, mean, median, mode, range, and estimation) to interpret quantitative data.
All lessons	8.2.4.	Design and conduct a scientific investigation (e.g., making systematic observations, making accurate measurements, identifying and controlling variables).
3, 4	8.7.1.	Explain the interaction of science and technology with social issues (e.g., mining, natural disasters).
North Dakota Mathematics Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark Expectations
3, 4	6.1.3.	Find the equivalent forms among fractions, decimals, and whole number percents.
3, 4	6.1.9.	Use order of operations, i.e., multiplication, division, addition and subtraction, to simplify numeric expressions.

NORTH DAKOTA ALIGNMENT FOR NIH SUPPLEMENT DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

3, 4	6.1.13.	Use problem solving strategies to solve and verify the results of problems.
3, 4	6.3.1.	Collect and organize data, select and use an appropriate display, i.e., a frequency table, a line and bar graph.
3, 4	6.3.6.	Make predictions based on trends identified in tables and graphs.
1	6.4.1.	Measure length to the nearest sixteenth of an inch.
3, 4	6.5.1.	Identify and describe patterns represented by tables, graphs, and sequences.
Grade 7		
Lesson	Standard	Benchmark Expectations
3, 4	7.1.4.	Use integers to represent and compare quantities.
3, 4	7.1.5.	Explain the effects of arithmetic operations on fractions, decimals, and integers.
3, 4	7.1.8.	Solve real-world problems using integers, fractions, decimals, and percents.
3, 4	7.1.9	Estimate the results of problems involving fractions, decimals, and percents.
3, 4	7.3.1.	Formulate a question; collect, organize, and display data using a bar, line, and circle graph.
3, 4	7.3.7.	Explain inferences made from statistical information.
3, 4	7.5.1.	Create tables and graphs to analyze and describe patterns.
Grade 8		
Lesson	Standard	Benchmark Expectations
3, 4	8.1.2.	Solve real-world problems involving ratio, proportion, and percent.
3, 4	8.1.5.	Apply operation properties to simplify computations and solve problems, i.e., commutative, associative, and distributive.
3, 4	8.1.7.	Add, subtract, multiply, and divide integers.
3, 4	8.1.8.	Select and use a computational technique (e.g., mental calculation, paper-and-pencil, technology) to solve problems.
3, 4	8.1.9.	Determine when an estimate is sufficient and an exact answer is needed in problem situations.
3, 4	8.3.1.	Formulate a question and select a random or representative sample.
3, 4	8.3.7.	Make inferences based on analysis of data and interpretation of graphs.
3, 4	8.4.1.	Select an appropriate degree of precision when using measurements for calculations.
North Dakota ELA Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark Expectations
3	6.1.1.	Pose relevant research questions.
3	6.1.2.	Use sources that are appropriate for the research purpose.
3	6.1.4.	Use information from several sources.

NORTH DAKOTA ALIGNMENT FOR NIH SUPPLEMENT DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

3	6.1.5.	Write a research report.
All lessons	6.2.3.	Use word recognition skills and vocabulary building strategies to determine the meaning of unfamiliar words and make sense of text e.g., synonyms/antonyms, prefixes/suffixes, multiple meaning words, context clues, and word reference aids – dictionary, glossary, thesaurus, base words.
All lessons	6.2.5.	Use prior knowledge and experiences to aid text comprehension.
All lessons	6.2.6.	Read to be informed, entertained, and persuaded.
2, 3, 4	6.3.1.	Produce informative writing e.g., research-based report, instructions.
All lessons	6.3.5.	Use strategies to write for different audiences and purposes.
All lessons	6.3.7.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	6.3.10.	Edit for grammar, mechanics, usage, and spelling.
3, 4	6.3.11.	Incorporate visual aids into written work.
All lessons	6.4.4.	Summarize key ideas of a speaker.
All lessons	6.4.5.	Use appropriate volume and eye contact when speaking.
3, 4	6.5.2.	Use technology according to the district's appropriate use policy.
All lessons	6.6.1.	Use grade-appropriate conventions of sentence structure i.e., simple, compound sentences, fragments, run-ons and declarative, interrogative, imperative, exclamatory.
All lessons	6.6.3	Use grade-appropriate mechanics and usage i.e., Capitalization: I, Proper Nouns, Proper Adjectives, and in sentences; Punctuation; end marks, quotation marks in dialogue, comma in a compound sentence, items in series, apostrophe, Usage: homonyms, spelling strategies for grade appropriate conventions of spelling.
Grade 7		
All lessons	7.2.2.	Use graphic organizers, summarizing, paraphrasing, and vocabulary building strategies, including context clues, to enhance understanding and aid comprehension of the meaning of texts.
All lessons	7.2.4.	Use prior knowledge and experiences to aid text comprehension.
All lessons	7.2.5.	Read to be informed, entertained, and persuaded.
All lessons	7.2.11.	Use vocabulary building skills and strategies e.g., synonyms/antonyms, prefixes/suffixes, analogies, multiple meaning words context clues, word reference aids – dictionary, glossary, thesaurus, to determine the meaning of unfamiliar words and make sense of text.
3, 4	7.3.1.	Produce research-based writing e.g., news article, book reports, essay.
All lessons	7.3.4.	Use strategies to write for different audiences and purposes e.g., informative, narrative, persuasive.
All lessons	7.3.6.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	7.3.9.	Edit for grammar, mechanics, usage, and spelling.
3, 4	7.3.10.	Incorporate visual aids in publications.
All lessons	7.4.4.	Construct questions in response to a speaker.

NORTH DAKOTA ALIGNMENT FOR NIH SUPPLEMENT DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

3	7.5.3.	Assess the relevancy and accuracy of information in media messages.
All lessons	7.6.1.	Use grade-appropriate conventions of grammar i.e., capitalization: dialogue, title of people and things; punctuation: commas, quotation marks, apostrophes, colons/business letters and in time, underlining/italicizing; usage: double negatives.
All lessons	7.6.3.	Use grade-appropriate mechanics and usage i.e., capitalization.
Grade 8		
All lessons	8.2.2.	Use prior knowledge and experiences to aid text comprehension.
All lessons	8.2.3.	Use a variety of strategies to construct meaning from text e.g., vocabulary building strategies, skimming, paraphrasing, summarizing, brainstorming, discussing.
All lessons	8.2.4.	Read for a variety of purposes to develop lifetime reading skills and habits, e.g., for personal recreation, to model forms of writing.
All lessons	8.2.9.	Use vocabulary building skills and strategies e.g., synonyms/antonyms, prefixes/suffixes, multiple meaning words context clues, word reference aids – dictionary, glossary, thesaurus, to determine the meaning of unfamiliar words and make sense of text.
All lessons	8.2.10.	Build vocabulary e.g., Greek and Latin roots, dictionary information, content area terminology.
All lessons	8.3.1.	Compose informative writing, e.g., research, biographies, autobiographies, news articles, interviews.
All lessons	8.3.5.	Use language and format appropriate for intended audience and purpose.
All lessons	8.3.7.	Incorporate grade-level appropriate vocabulary in writing.
All lessons	8.3.8.	Use organizational patterns e.g., introduction, body, conclusion or exposition/body/resolution.
All lessons	8.3.11.	Edit for grammar, mechanics, usage, and spelling.
3, 4	8.3.12.	Incorporate a variety of visual aids in publications.
All lessons	8.4.3.	Speak for different purposes e.g., group discussions, research presentations and demonstrations.
3, 4	8.5.2.	Access media (e.g., television, film, music, electronic databases, videos, DVDs, comics, visual and performing arts, newspapers, and periodicals) for a variety of purposes.
All lessons	8.6.3.	Use grade-appropriate mechanics and usage i.e., capitalization: publications and in letters; punctuation: commas, semi colons, colons, quotation marks, underlining, hyphens, apostrophes; usage: misplaced modifiers.
North Dakota Health Content Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Benchmark
3, 4	6.2.3.	Identify the causes and prevention of common diseases and other health problems (e.g., asthma, diabetes, obesity, allergies, sexually transmitted disease/infection [STD/STI], cardio-vascular disease).
3, 4	6.3.2.	Explain how the environment can affect personal health (e.g., second-hand smoke, available health care).

NORTH DAKOTA ALIGNMENT FOR NIH SUPPLEMENT DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY

3	6.6.1.	Identify situations that require professional health services (e.g., depression, eating disorders, drug or alcohol usage).
3	6.7.2.	Describe ways to convey (e.g., power point presentation, group projects, posters) health information and ideas to individuals and groups.
Grades 7 & 8		
3	7-8.2.6.	Identify the symptoms and treatment of common diseases and other health problems (e.g., allergies, communicable/non-communicable).
3	7-8.2.7.	Explain ways in which school and public health policies can influence health promotion and disease prevention (e.g., tobacco and wellness policies).
3	7-8.3.2.	Identify ways that physical environment (e.g., natural and man-made disasters, pollutants) influences the health of individuals.
3, 4	7-8.7.1.	Describe strategies (e.g., compromise, active listening, knowledge of facts, assertiveness) to influence and work cooperatively with others to advocate for healthy individuals, families, and communities.